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ST. CATHARINES, ONTARIO.

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1879.

THE CANADIAN HORTICULTURIST.

Published by the Fruit Growers' Association of Ontario.

Rev. R. Burnet, President, *London.* - - D. W. Beadle, Secretary, *St. Catharines.*

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THE BOTANICAL SOCIETY.

In the May number there appeared an article on the study of botany, from the pen of George Mill, of Warwick, Ont., in which it was proposed to form a botanical society; and to that end, all persons wishing to form such a society were requested to send their names and address to the Canadian Horticulturist for publication. The object of this is to enable students of botany to become acquainted with each other, and to take such steps as may seem advisable for the formation of a permanent provincial society.

The following names have been received:

J. Fletcher, Ottawa.
G. A. Deadman, Brussels.
Mrs. Wm. Roy, Owen Sound.
James H. Bowman, London.
A. J. Wilkinson, Cambray, Vic. Co.
Rev. R. Hay, Forest.
L. McFadyen, Forest.
Linus Woolverton, Grimsby.
Dr. Scott, Forest.
Miss Woodroofe, Forest.
Mrs. Hart, Forest.
James Johnstone, Forest.
George Mill, Warwick.
H. Beaumont Small, Jr., Ottawa.
R. B. Whyte, Ottawa.
Ebenezer Watson, Sarnia.

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BEADLE & BUCHANAN,

St. Catharines, Ont.

The Canadian Horticulturist.

VOL. II.] NOVEMBER, 1879. [No. 11.

NOTES FROM CHATHAM.

BY R. O'HARA, CHATHAM.

In Kent County at this date, July 25th, 1879, the fruit growers have every reason to be satisfied with the general results of their labor. A June frost somewhat damaged the strawberry crop in the interior of the county, otherwise, all fruits except apples were in great abundance. This crop is thin, owing probably to the prodigious yield of last year. Grapes and peaches are in great profusion.

This is with me the fourth summer of the Salem Grape vine distributed by the Association, who with perhaps unintentional liberality sent me two specimens. For the reception of these interesting plants, I prepared, at the foundation of a verandah with a south-western exposure, two trenches six feet square and three feet deep; these I filled with fresh sods, bones, charcoal and ordinary garden soil. A space of twenty-nine feet by eight feet is now almost entirely covered with rank foliage, and with such a weight of fruit that I am tempted to cut part of it off. I lay down the vines every winter in the angle formed by the surface of the plot and the base of the verandah, covering with an ordinary board. I am satisfied that in every part of Canada this extra trouble is well repaid, and in this latitude we are satisfied that every vine twig so treated in the autumn will be alive in the spring.

The Downing Gooseberry has succeeded famously. The bush bears well. The fruit, a light greenish white, being of the size of a musket ball. The flavor, however, in the opinion of most people being decidedly inferior to that of the Houghton Seedling. The former shows a trace of mildew here and there, the latter never.

The Glass' Seedling Plum is still growing with the rapidity peculiar to this fruit tree under favorable circumstances. I may add that all my operations in gardening are in a rich clay soil, disintegrated

with ashes or stable yard manure. Ten other plum trees I have which each exhibited about a peck of plums early in June of this year, and which were of course at the mercy of the Curculio unhindered. I contrived a plan by which the atmosphere was rendered disagreeable. In the centre of one of the trees I placed an earthenware dish full of coal oil, which gave the impression that an oil refinery was in the immediate vicinity. Of the fruit of this tree I lost about ten plums, four or five of which only bore the characteristic mark of the Turk. Three-fourths of the fruit of the remaining trees was destroyed by his ravages. I seek not to establish any relation between a cause and an effect, merely mentioning a fact to which many persons can bear testimony, in the hope that the subject may be more fully investigated, and the value of coal oil as an ally in horticulture be more thoroughly tested.

The Clapp's Favorite pear tree was all that could be desired. In this instance also the Association sent me two specimens. Both attained a height of ten feet and then succumbed to the dread fire—blight. The raspberry never grew. The strawberry distributed by the Association, which I took to be Arnold's Seedling, succeeds admirably in clay ground. The fruit, which is liberally displayed, attains a great size. In appearance, a cross between the Triomphe and Col. Cheney. The flavor, however, is certainly not equal to that of the Triomphe, than which no better strawberry, in my opinion, can be planted in rich clay soil. The other plants distributed I did not get.

THE FIG AGAIN.

BY G. F. NEEDHAM, WASHINGTON, D. C.

Had friend Bucke acquired experience in laying down the fig tree as per instructions in my paper, his fears that they are too tender and brittle would be "like the baseless fabric of a vision."

However, I am glad that he has called the attention of your readers to this delicious fruit, and I hope that the matter will be kept before the people until all shall hear the good news, that they can grow the fig in your delightful climate as well as they can at the south, and with far greater success than they can in England. Speaking of England, by the way, a correspondent has just sent me a leaf from the

original tree brought to England eight hundred years ago, by Thomas a'Becket, and from which he says he has eaten fruit each year for many years past.

I will be pleased to send my paper "*Fig Culture at the North a Success*" to any address, (the party enclosing a postage stamp) though perhaps the full publication of the practical part of it in the July number, will obviate the necessity of your readers ordering it.

We have received the following article from B. Gott, Arkona, in response to our request that he would give the readers of the CANADIAN HORTICULTURIST the benefit of his experience in growing peaches for market, and we are sure our readers will join us in thanking him for his kind and ready response.

PEACHES MOST PROFITABLE FOR MARKET IN OUR CLIMATE.

BY B. GOTT, ARKONA.

By the term "our climate," I mean those conditions of atmosphere and earthly surroundings common to a large part of western Ontario. By the word "market," we understand any market in this country that is the readiest attainable. This western Ontario is a hard region in which to think of growing tender and luscious peaches, and will in no respect compare for this purpose with the congenial and far-famed Atlantic sea-board, where early peaches of the finest character are so largely grown. Yet by some unexplainable and mysterious Providence over us, peaches are grown—and, moreover, are grown in large quantities—and to our utter astonishment they are not so bad in size, texture, flavor and general appearance and quality. We ourselves have been engaged in the patience-trying business of peach growing in this section of western Ontario for ten years, and during all that time we have never had an off year, that is, a year when we have not had peaches. In some seasons our crop has amounted from our own orchards to between two hundred and three hundred bushels. Of course this looks rather small for a business, but you will please bear in mind that we are not yet fairly established, but are testing, trying, or experimenting in this matter, like mariners on an unknown sea,

afraid to launch out lest they should come to trouble. With the view of further testing this matter, we planted out, a year ago last spring, a young peach orchard of about one hundred and thirty trees, embracing some fifteen choice American and Canadian sorts. These young trees are doing remarkably well, and promise before long to show us samples of their beautiful luscious fruits. When that time arrives we hope probably to be in a far better position to deal with the question at the head of this paper.

But to present duty! I gave you to understand some time ago that we have found our home-grown seedlings to be the most profitable in our markets, and this will at once appear from the following considerations: Firstly, the trees are habitually hardier and persistently fruitful. They bear annually large and regular crops of fine flavored and showy fruit, so that we can afford to sell them cheap, and this exactly suits the calibre of many of our customers. If we should go into market with a basket of golden Crawfords, almost certainly the customer would wistfully look at them, take one in his hands and feel of it, and ask, "What is the price?" When being told, he would shrug his shoulders with an unmistakable significance and silently walk away. But if told to "hold on, here is a basket that you can have for half that figure," he would stop, and his calculations would at once be aroused. We could easily sell ten baskets of these cheap peaches while we are selling one basket of the richer but dearer ones. It is only the monied customer, the man of large means, who considers worth of first importance, and gratifies his taste at any expense, to whom we dare show our best and most valuable peaches. Well, you ask, why can you not sell Crawfords as cheap as you can seedlings? Oh! here is the very pith of the question. Every tree will have, say, four bushels of seedlings, while those of Crawfords will have only one, so that four times the trees and four times the land must be employed for their production—at least this is our experience.

But, secondly, we have found no improved variety that will stand the test of our variable climate, and consequently a profitable cropper. It is true we lose no peach wood, but by some means or other the blossoms are rendered fruitless, and our hopes are frustrated. This occurs either during the winter, when the germ is perished in the bud, or in the spring, at or just after the time of blossoming. Just at that particular period we invariably have cold, chilly, perishing winds,

sometimes accompanied by frosty nights; these are a sure and certain cure for valuable, tender peaches. Our seedlings, however are habituated, as it were, to this kind of thing, and do not appear to mind it.

Again, the present state and condition of our people, as to their tastes and abilities, are very unsatisfactory as far as improved fruit-growing is concerned. As a general thing in our country towns and villages people are in their elements as respects refined living, and many of them have their abilities sufficiently taxed to secure the bare necessaries of life. Their tastes are generally uncouth and their appreciation of objects of luxury in many cases very rude, especially when it applies to fruit. Notwithstanding all these varied discouragements, (and what business is entirely without them,) in good fruit products we are perfectly astonished at the demand annually manifested for it by the people. Our people are in their transition at present; they are being educated, as it were, in these matters, and the demand for improved peaches and good fruits generally is annually widening, and becoming gradually more general. A very short time ago thousands living in these western counties of Ontario never saw a Crawford peach, but now what a change at every exhibition; many are placed on the tables, and every country youngster is thoroughly acquainted with not only their appearance but much rather with their flavor too. It would be a great blessing to us could we successfully persuade more to grow them, so that the temptation to low and miserable pilfering and night raiding our fine fruit orchards should be reduced to a minimum. To our shame, in this country, every man or boy has a right to whatever he can get hold of in the shape of fruit. You will observe that I have said nothing of our city markets, as my experience there is so slight that it would not really warrant me in doing so; let others more familiar give us their experience in this respect. You will also notice that whenever I have spoken of improved peaches I have mentioned the Crawford, meaning Crawford's Early as the representative of all good peaches, and the golden head of the list.

In conclusion, I beg to remark that the model peach for our markets must be large in size, rounded and plump in form. It must be highly colored, deep-yellow, mottled and striped with bright-red at least on one side, and must be yellow in flesh and rich and melting in flavor; exactly fulfilled by a properly grown Crawford. I maintain, that as this peach properly fills the bill, all other peaches will be successful in our

markets in proportion to the degree of proximity to this peach, either the Early or the Late. I think that most of our fruit growers will at once endorse this description.

PATENTS FOR IMPROVED FRUITS.

BY A. HOOD, BARRIE, ONT.

It has long been felt desirable that there should be some means of securing to those who confer benefits on the human race, by improving the quality or adding to the variety of its fruits, vegetables, and cereals, a part of the value of those benefits, in some measure proportionate to their worth, and as a reward for their diligence and perseverance; aye, and in some cases to a life-long devotion of their time and talents which have been directed to the attainment of those ends.

It is unjust to those who have labored for the advancement of any particular science or art, that no sooner have they met with some degree of success, and begun to disseminate any improved varieties of fruits they may have been so fortunate as to produce, than third parties step in, propagate the fruits thus disseminated, and place on the market in competition with the original producer before he has begun to reap the reward of his skill and perseverance. It is not necessary to discuss the question as to how far the producer's interest in the results of his skill should extend. It may be an open question whether a man has an exclusive right to the creations of his own brain, whether in literature, in mechanical skill, or the products of the soil. It may be argued that if nature has given an individual talents, he owes something to nature for the gift; that he may not hide his talents under a bushel, but is expected to use them and improve them, not for his own benefit alone, but for that of the whole human race. Be this as it may, no one will dispute that "the laborer is worthy of his hire," and it will scarcely be claimed that labor of the kind under discussion is ever too well rewarded, while it certainly will not be denied that in a great majority of cases the compensation is quite inadequate. It is with a view of suggesting a plan by the adoption of which this long-felt want will be satisfied, that the writer has taken pen in hand; and if in striving to attain this one object some other desirable points should be gained, it will be killing several birds at one throw.

These other points may be briefly mentioned: In the President's address for 1878, he remarked that it was to him "a subject of wonder that a berry so promising as Mr. Reid's 'White Raisin Grape' should be allowed to remain under a bushel for the last ten years, and what is true of this grape is also true of the Fellenberg Plum." "I fear (he adds) something is wrong either with the producer or the Association, or both." That something is out of joint when such valuable acquisitions are persistently neglected, few will deny; but whether anything is wrong, or only the want of something that is right, may be a subject for discussion. It may be that these fruits have not been offered for sale; that there is not one individual of our population in ten thousand that is aware of the existence of such fruits, much less where they are to be obtained; it is probably only those who have read the reports of the Fruit Growers' Association know anything about them, and a great many of these are apt to forget. Such things require to be brought to the attention of would-be-purchasers, to be shown to them and explained to them, and rely upon it, they would be sold. When patents are taken out for merchantable products, or mechanical inventions, these patented articles are not left on the manufacturer's shelves to sell themselves, but are placed in the hands of travellers and agents, who scour the country soliciting orders. The patentees do not expect people who never heard of their patents to come and buy the patented articles, and why should they, under similar circumstances, to be expected to go and buy improved grapes or choice plums?

So it appears that if any new and valuable fruit is introduced into the world, it may be welcomed by the Fruit Growers' Association; patted on the back by the fruit committee; duly christened by its enthusiastic originator, and then—left to take care of itself, and expected to make a noise in the world as though all nations were waiting to fall down and worship it.

Supposing the ignorance referred to in regard to new fruits did not exist, there is still another difficulty which would very materially retard the sale of them, and that is, that they are in the hands of so many different originators, so that if a person wishes to possess five or six of the improved fruits he will have to apply to as many different people to obtain them. Suppose, for instance, that he would like to have the White Raisin Grape, the Fellenberg Plum, the Burnet Grape, the

Diadem Raspberry and the Glass' Plum, look at the number of letters he would have to write, enquiring the price and sending the money, and how many visits to the express office to receive them. Why, there are lots of people who would rather pay for any of these fruits twice over than write half the letters that would be necessary to procure them. And then, you see, they might write to Mr. Dempsey for the Burnet Grape, and he would perhaps inform them that he had placed it in the hands of Mr. Lesslie for sale; and so on, in what nineteen persons out of twenty would consider an endless round of botheration.

And still another difficulty presents itself in regard to introducing some chance seedlings, which it is hoped the plan to be suggested will remedy—It is this: It has happened, and probably will again, that some of our greatest acquisitions are the result of chance, or have been discovered through accident by persons who are not engaged in the fruit or nursery business. The history of our choicest fruits tell us that a great many of them have originated in this way, (the Baldwin Apple for one) but history does not tell us how many equally valuable may have been lost to the world, simply because the possessor or finder had no interest in, or could reap no profit by, endeavoring to make them known, until perhaps the death of the parent tree placed it forever out of the reach of the fruit-loving community. The writer believes himself to be at the present time in possession of a valuable seedling, in regard to which he finds himself in a somewhat similar position to that here described. In regard to all of which it may be said, as was said before, there is something wanting; there is a motive wanted to induce those who possess such rare acquisitions to make them known and spread them abroad.

Now comes the questions, How are we to remedy some or all of these evils? How are we to stimulate the hybridizer—to make known to the world what he has produced? How to introduce and sell those products to those who want them, and to encourage lucky possessors of valuable chance seedlings to bring them forward and place them on the market? As a solution to all these queries, the following suggestions are offered:

That fruit patents be granted for a term of years at a trifling cost to the patentee.

That a patent fruit nursery be established, and all patented fruits

placed in the hands of the proprietor or proprietors of such nursery for propagation and distribution.

That none but the proprietors of this patent fruit nursery and the owners of patents be allowed to sell any patented fruits, the latter to sell none but their own patents.

This is merely an outline of the scheme which would necessarily involve the study and discussion of a great many details before it could be put in successful operation, but it is hoped there are no insurmountable obstacles in the way; so with the view of eliciting the opinions of practical men the following ideas are throw out. In the first place parliamentary aid would be necessary to enable any society to grant patents, and though it may be an open question whether such power should be put in the hands of the Fruit Growers' Association, no patents we think should be granted without their recommendation.

An examining committee would be required, whose duty it would be to examine all fruits for which patent rights are asked, and as the members thereof could not be expected to perform the duties pertaining to their office gratuitously, they should receive such remuneration as the directors of the Association shall see fit, to be paid out of patent fees. It would be incumbent on this committee to be extremely cautious in their recommendations; to give their stamp of approval to no variety, however good, that is not undoubtedly superior in some respects to all similar fruits in cultivation; and let the standard of excellence be such, that the recommendation of the association or its committee shall be a guarantee of excellence to the whole continent.

The establishment of a patent fruit nursery on a proper basis would be of the greatest importance to the success of this scheme; so much so, that the way in which this idea is carried out might make or mar the whole project.

This establishment should be placed in the hands of none but practical nurserymen, who have command of a sufficient quantity of the right kind of soil, in some central locality, to suffice for the probable requirements of the busines; and that individual or company who tenders to do the work at the lowest rates to have the appointment, other things being satisfactory; the tenders to be for the propagating, growing, and selling all the different kinds of fruits when sold by the dozen, the hundred or the thousand. Let then the patentee add to these prices a further sum within certain limits, which sum or sums

shall be paid to him as his profit on his patent, and he not to be allowed to sell for himself the same fruits at any less price; the nurseryman to furnish security that the patentee's shares shall be duly accounted for.

Tenders may be received from any parties, whether at present engaged in the nursery business or not, but it is thought that the addition to any established nursery of such a department would give such a stimulus to the regular business that reliable nurserymen will be induced to tender at very low rates.

It would of course be best that the nursery farm should be owned by the Fruit Growers' Association, and sub-let by them to the successful contractor; so that in case his management of the business was not satisfactory, he could be removed and another put in his place, which would be better than having to move all nursery stock, as would be the case if he owned the land. The great advantage of this plan would be that one agent would be able to sell any and all patented fruits, and if connected with a nursery could supply any kinds of trees or plants to the same customers, which might be all packed and forwarded at one expense. Private individuals who are in possession of chance seedlings could get them patented and place them on the market as easily as the most extensive nurserymen, and would have as good a chance of realizing a profit.

Finally, let this scheme aim as much to prevent worthless varieties being spread abroad, and nearly similar kinds unduly multiplied, as to protect hybridizers in the enjoyment of the fruits of their skill and perseverance; and we think it would be a benefit to the public, and a great convenience to the discoverers or originators of new varieties.

NEW VARIETIES OF GRAPES.

At the recent meeting of the American Pomological Society held in Rochester, considerable attention was given to the newer varieties of grapes, of which there seems to be a large number claiming public favor.

Moore's Early was very favorably spoken of by Massachussetts men, particularly on account of the hardiness of the vine and the early ripening of the fruit. In the vicinity of Boston it ripens two weeks earlier than the Concord, and is considered to be quite equal to that variety in flavor. The sample of the fruit shewn by Mr. Moore, and

which grew on his grounds at Concord, Massachusetts, was very large and beautiful, but it did not seem to us to be equal in flavor to the Concord as grown here. It was the general opinion that it was a very valuable variety for the north on account of its hardy character and earliness.

The Niagara was also highly praised by several gentlemen who had seen it growing on the grounds of the originator, C. L. Hoag, Lockport, N. Y. This is a white grape, ripening about a week earlier than the Concord. The vine is very vigorous and healthy, an abundant cropper, and perfectly hardy. The fruit has somewhat of the odor of the Concord, but better in flavor. This variety has not yet been disseminated, hence our readers may know that any one offering to sell vines of it at any price is an impostor.

The Prentiss is another white grape, fruit of which was exhibited by T. S. Hubbard, of Fredonia, N. Y. This variety is not any earlier than the Concord, but compares favorably with Allen's Hybrid in point of flavor. We do not expect that the vine will prove as vigorous, healthy and hardy as the Concord, but believe that it will thrive and ripen its fruit under ordinary treatment much better than the Allen's Hybrid, and may be profitably substituted for that sort. This will be offered in the fall of 1880.

The Pocklington is another white grape of large size and showy appearance, but seems to be lacking in quality; from what was said of it, we infer that it is not likely to be a desirable variety to plant in Canada.

The Lady, yet another white grape, was well spoken of by many. It is a seedling of the Concord, ripening before that variety, and of very good quality. A gentleman from Connecticut said that it was the best white grape in that State. The skin is delicate and very tender so that the berries often crack, which may be prejudicial to it as a market grape.

The Lady Washington is one of Mr. Rickett's seedlings, and has probably never been fruited except at Newburgh, N. Y. It is very handsome in appearance and said to be of good quality, but there is danger that it will not prove to have a sufficiently vigorous constitution to resist mildew and thrive under ordinary culture.

The Brighton, though not as new as the preceding, was spoken of by several as having usually proved to be a healthy and hardy vine, ripening its fruit about with the Concord, and excellent in quality.

THE GRAPE-VINE GALL LOUSE (*Phylloxera Vastatrix.*)

During the present season a number of packages have been received containing grape-vine leaves infested with the Gall Louse, accompanied with letters of enquiry as to the cause of this strange appearance, and whether it betokens serious consequences to the grape vines. From the number of these enquiries, we are led to believe that there may be a number of our readers who would be interested in an account of this insect, for it seems to be on the increase, and may appear next season in vineyards where it has not hitherto been observed.

Fig. 11.

The accompanying engraving, fig. 11, represents the under side of a leaf covered with the galls, which are fleshy cup-shaped, sometimes purse-shaped swellings, wrinkled and hairy; while the upper side of the leaf shews corresponding depressions, which look like minute cups, having their rims so drawn together as to form small, fuzzy, fimbriated mouths, opening into the cups below. A section of one of these cups is shewn in fig. 12, at *d*, considerably magnified, so that the opening on the upper side of the leaf, surrounded and guarded by minute hairs, can be distinctly seen, the dark part below representing the form and position of the cup, with its fleshy walls covered with hairs.

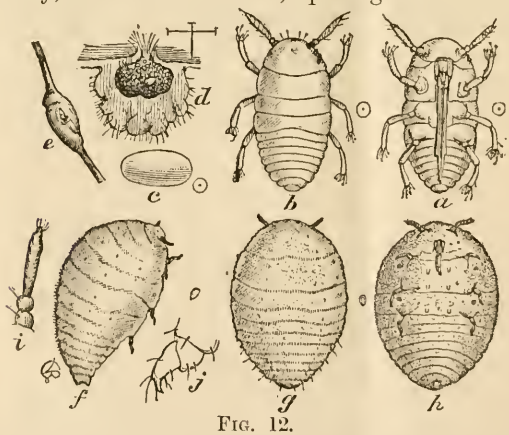

Fig. 12.

These galls may be found in the early part of the summer, shortly after the leaves have

become fully expanded, scattered sparsely on some of the leaves near the ground, and about the size of an ordinary pea. Within this gall the parent louse may be found busily laying little yellow eggs of an elongated oval form, and nearly the one-hundredth part of an inch in length. The appearance of these eggs is shewn in fig. 12, at *c*, highly magnified. The mother-louse herself is about four-hundredths of an inch in length, usually spherical in form, and of a dull orange color. The forms marked by the letters *f*, *g*, and *h*, in fig. 12, shew the mother-louse; *f* being a side view, *g* shewing the back, and *h* the under side. The skin of this insect is shagreened or minutely granulated, and furnished with rows of minute hairs. Within this cup or sack she continues to deposit her eggs until they are all laid, from two to five hundred in number, and then dies and dries up.

In from six to eight days the eggs burst, and the young lice come forth. These are little six legged creatures, with two antennæ, and supplied with an instrument for puncturing and sucking up the juices of the leaves. They are represented at letters *a* and *b*, fig. 12, the under side being shown at *a*, the sheath of the pumping apparatus, extending nearly the entire length of the insect, and the upper side or back being seen at *b*. These young lice are quite active, and creeping out at the mouth of the sack in which they were born spread themselves over the vine, seeking the young and tender leaves near the ends of the shoots. Having found a suitable place for their future operations they settle down for life, and using their proboscis, (which consists of three elastic, wiry hairs, so fine that when they are united they form a thread so small that it can scarce be seen with a very powerful microscope, and yet so sharp that they easily puncture the outer surface or parenchyma of the leaf,) they thrust it into the leaf and commence to pump up and feed upon its juices. This puncture, and the irritation kept up by the insect, causes the under side of the leaf to thicken, and gradually to form the sack or cup shewn at *d*, fig. 12. into which the louse settles as the sack forms; increasing also in size until it presents the appearance shewn at *g* and *h*, fig. 12. Having become fully grown, she is also full of eggs, which without any impregnation from the male louse are fertile. These eggs she lays in quick succession until the gall is filled with them. This production of living issue without assistance from the male is called parthenogenesis, and is not confined to this insect only, but belongs also to other forms of

insect life. Having deposited her eggs, the mother dies and shrivels, but from each of these eggs there hatches out a fertile female; these in their turn creep out of the gall and seek the young and tender leaves upon which they fasten themselves, produce more galls, lay more eggs, which again produce fertile females. This process goes on for five or six generations, so that the number towards the end of the summer becomes immense. Sometimes these insects are so crowded that they cover not only the leaves but also the tendrils, leaf stalks and tender shoots, upon which their punctures form knots, as shewn at letter *e*, fig. 12. Suppose there should be one of these insects on a vine at the commencement of summer, and that she laid only two hundred eggs, the lowest average number given by observers, and that each of these two hundred laid two hundred more, and that this is continued for five generations, we have 320,000,000,000 as the progeny of a single mother by the end of summer. Fortunately this prolific creature has its natural enemies, which serve to materially reduce the number, so that at the end of summer they are not as numerous as their wonderful fecundity would make them.

In the autumn, when the vines cease to make new growth, and consequently the lice can find no tender leaves on which to feed, they leave the foliage and descend to the ground and attach themselves to the roots, from whence they seem to come again on the return of summer, to puncture the young leaves and repeat the gall making proceedings of their mothers. From the fact that no male louse has ever been found among these gall makers, entomologists have concluded that they are but the agamic and apterous female form of the root-feeding type, which means that these never have wings, and never marry, being but the transient summer state of the root-infesting louse, which at every third or fourth generation produces males, and as in that generation both males and females have wings, they can easily spread through a vineyard, and from one vineyard to another.

These leaf gall lice do very little injury in comparison with that wrought by the root-inhabiting type, and by a little watchfulness in the early part of summer in picking off and destroying all leaves shewing any galls, the writer has found no difficulty in keeping them in check.

Fruit growers, and especially cultivators of the vine, are under great obligations to Prof. C. V. Riley for the study bestowed by him

upon this insect, for to his careful observations are we indebted for the information given above. Should any of our readers wish to pursue this matter further, and become familiar with the appearance and habits of the root-inhabiting type of this insect, they will find a full description, with illustrations, at page 57 of the Entomological Report, appended to the Report of the Fruit Growers' Association, for the year 1874.

RASPBERRIES.

BY B. GOTT, ARKONA, ONTARIO.

Yes, kind reader, the grateful season of raspberries has again come round, and here we have them in all their richness of variety, size, flavor and perfume. This is above all others emphatically a summer fruit, possessing in a most liberal degree the cooling acids best suited to the general healthfulness of the body in this feverish and intensely heated summer atmosphere. As this country possesses these conditions of summer-time in a very conspicuous and trying manner, so no country can boast of richer, handsomer, or more fragrant raspberries in great variety with which to refresh our languishing, famishing systems. During the week past we have been very busy among the raspberries, and of course our taste, smell and general sensitiveness is almost literally filled with them, and having them too in such great variety we are at once in a position to realize their value, and to compare their merits and demerits among themselves. The surprising fact that most forcibly strikes our attention is the growing demands and keenness of popular relish for the fruit. It would seem that now our people of every position in life are being waked up to realize the real worth and desirableness of good home grown raspberries.

Every patch of indigenous growth, no matter where found or without regard to personal comfort or safety in approach, is frequently visited by eager, famishing pickers, be they mother, or more sprightly son or daughter. Going raspberrying in merry companies is now one of the most pleasant and enjoyable of summer memories. Men of capital, position and intelligence scruple not to direct their attention to this matter, and large plantations of acres of rich Canadian soil are now being annually made to produce the fruit to supply the popular

demands. Enquiries are now being made—both by extensive and diligent reading and by expensive and laborious visiting of plantations already made, as to the most desirable soils, as to the mode of culture and the varieties best adapted to the purpose. All this is a pleasing feature in our progressive Canadian horticulture, and we are improving by it in moral character, in healthfulness and in national position and worth. Whatever stimulates our enquiries, fosters our industries, or promotes our independence, happiness and general prosperity, is a personal and national blessing of the highest type.

As for the preference of varieties, our experience this season has demonstrated most decidedly in favor of Clark, Turner, Naomi, and Philadelphia, for red; Brinkle's Orange or White Antwerp, for white, and for black, Mammoth Cluster, Seneca or Ohio Everbearing. These are doubtless the most profitable varieties to reward our careful cultivation, and will in their progressive ripening amply meet the most covetous demands of "a well regulated family."

HINTS ON CLASSIFICATION OF APPLES.

Professor Beal, of Lansing, Michigan, suggested to the members of the American Pomological Society, at their recent meeting, that he thought that by careful attention to the variety of form in the petals of the flowers of different varieties of apples, some further distinguishing marks might be found which would aid in making descriptions of apples more accurate and certainly distinguishing. Thus far the descriptions given are confined to the form and color and other peculiarities of the fruit alone, but his examinations have led him to believe that the size and shape of the petals are quite constant in any given variety, so that by the addition of a description of the size and form of the petals a greater degree of certainty may be secured in the description of any particular variety. He also had found that the length and breadth of the style of the flower might be also noted for the same end. This will open up a new and very interesting field of investigation for parties interested in the proper classification of fruit; and the results may be of considerable value to fruit growers generally.

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